Weather

4-4 The student will demonstrate an understanding of weather patterns and phenomena. (Earth Science)

4.4.4 Summarize the conditions and effects of severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) and related safety concerns.
Taxonomy level: 2.4-B Understand Conceptual Knowledge

Previous/Future knowledge: In 2nd grade (2-3.6), students identified safety precautions that one should take during severe weather conditions. They have not been introduced to the specific conditions related to thunderstorms, hurricanes, and tornadoes, nor to the effects of those storms. In 6th grade (6-4.4), students will summarize the relationship of the movement of air masses, high and low pressure systems, and frontal boundaries to storms (including thunderstorms, hurricanes, and tornadoes) and other weather conditions.

It is essential for students to know that the weather conditions associated with severe weather are different for each type of storm. These conditions have different effects and there are safety concerns associated with each condition. Three types of severe weather include:

Thunderstorm
- A severe storm with lightning, thunder, heavy rain and strong winds.
- Hail may also form. Some examples of the effects of thunderstorms may be: heavy rains can cause flooding; lightning can cause fires; strong winds can blow over trees or power lines.

Tornado
- A small, funnel-shaped cloud that comes down from a storm cloud with winds spinning at very high speeds.
- Some examples of the effects of tornadoes may be: high winds can tear apart buildings; every time it touches the ground, it destroys everything in its path.

Hurricane
- A large storm that forms over warm ocean water with very strong winds that blow in a circular pattern around the center, or eye, of the storm.
- Some examples of the effects of hurricanes may be: high winds can blow over trees, power lines, and even buildings; heavy rain can cause flooding; the storm waves on the ocean can come in at the beach and damage the coastal area;

There are safety concerns related to these storms because of their conditions and effects. Some examples of these safety concerns may be:
- During a thunderstorm, stay inside if possible; stay out of the water; and do not stand under trees.
- During a tornado, find a safe place away from window; if you cannot find shelter lie flat in a ditch or other low place; and do not stay in your car.
- During a hurricane, board up windows in your house; stay away from windows; and move further inland if you are near the coast.

It is not essential for students to know how these storms form.

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Assessment Guidelines:

The objective of this indicator is to *summarize* severe weather phenomena and related safety concerns; therefore, the primary focus of assessment should be to generalize the main points in the description of the conditions and effects of these storms and to generalize safety issues related to these storms. However, appropriate assessments should also require students to *identify* the three mains types of severe storms; *exemplify* severe weather safety procedures for each type of storm; *compare* different types of severe weather phenomena; or *classify* different types of severe weather phenomena.-